

WHAT IS CLAIMED IS:

1. A drive mechanism, comprising:

an electromechanical transducer having a pair of ends in an extending and contracting direction;

5 a drive member fixed to one of the pair of ends of the electromechanical transducer;

a driven member which is driven by the drive member and which contacts frictionally with the drive member under a predetermined frictional force exerting therebetween; and

10 a controller for supplying the electromechanical transducer with drive pulses, wherein the controller includes a driving circuit which generates a first set of the drive pulses for driving the driven member, and includes a frictional force reducing circuit which generates a second set of the drive pulses for reducing a frictional force exerting between the drive member and the driven member.

15 2. A drive mechanism as claimed in claim 1, wherein

20 the second set of the drive pulses generated by the frictional force reducing circuit have sinusoidal waveforms.

25 3. A drive mechanism as claimed in claim 2, wherein the frictional force reducing circuit is arranged to change at least one of a frequency and an amplitude of the

sinusoidal waveforms of the second set of the drive pulses so as to adjust the reducing amount of the frictional force exerting between the drive member and the driven member.

4. A drive mechanism as claimed in claim 1, wherein
5 the drive pulses supplied to the electromechanical transducer by the controller have rectangular waveforms.

5. A drive mechanism as claimed in claim 1, wherein
the drive pulses supplied to the transducer by the controller have rectangular waveforms, and wherein the
10 controller is arranged to change a duty ratio of the rectangular waveforms thereof, so that the controller is allowed to drive the driven member and to reduce the frictional force exerting between the drive member and the driven member.

15 6. A lever device in which a lever member is driven by the drive mechanism as claimed in claim 1.

7. A drive mechanism as claimed in claim 1, further comprising a charge mechanism in which a spring extending and contracting in a moving direction of the driven member
20 is disposed, and in which the spring is charged by movement of the driven member.

8. A shutter mechanism driven by the drive mechanism as claimed in claim 7.

9. A drive controlling method for controlling a
25 drive mechanism which comprises:

an electromechanical transducer having a pair of ends in an extending and contracting direction;

a drive member fixed to one of the pair of ends of the electromechanical transducer; and

5 a driven member which is driven by the drive member and which contacts frictionally with the drive member under a predetermined frictional force exerting therebetween,

the drive controlling method comprising the steps
10 of:

generating drive pulses; and
supplying the electromechanical transducer with
the drive pulses, wherein a mode in which the driven member
is moved, a mode in which a frictional force between the
15 driven member and the drive member is reduced, and a mode
in which the driven member rests relative to the drive
member are switched over by changing waveforms of the drive
pulses.

10. A drive controlling method as claimed in claim 9,
20 wherein the drive pulses have sinusoidal waveforms.

11. A drive controlling method as claimed in claim
10, wherein the reducing amount of a frictional force
exerting between the drive member and the driven member is
adjusted by changing at least one of the frequency and the
25 amplitude of the sinusoidal waveforms of the drive pulses.

12. A drive controlling method as claimed in claim 9,
wherein the drive pulses have rectangular waveforms.

13. A drive controlling method as claimed in claim
12, wherein a duty ratio of the rectangular waveforms of
5 the drive pulses is changed so as to drive the driven
member and so as to reduce a frictional force exerting
between the drive member and the driven member.